

REMARKS

Applicants respectfully request reconsideration of this application in view of the above amendments and following remarks. Claims 1 and 56 are amended, and claim 57 is canceled without prejudice or disclaimer. Claims 61 and 62 are added. The revisions are supported throughout Applicants' disclosure and not new matter is introduced. Claims 1, 3-16, 18-21, 23-25, 27-46, 53, 55, 56, 58, 61, and 62 are pending. Applicants' representatives appreciate the Examiner's courtesy in interviewing this case on March 13, 2007, in which the remaining prior art rejections were discussed, including potential options for overcoming the remaining rejections. The following are the remaining prior art rejections.

Claims 1, 3-6, 11, 15, 18, 33-46, 53, and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-233993. Applicants respectfully traverse this rejection to the extent it is maintained.

Claim 1 is directed to a method of manufacturing a GaN single crystal, where the method requires the crystallization of an aeriform substance consisting essentially of GaHx.

The reference is directed to the formation of crystals through the nitrogen-containing substance GaNxHy. The reference does not disclose a method using GaHx and therefore there is no anticipation of claim 1 and its dependents. These materials differ significantly from the GaNxHy materials that are the focus of the reference in terms of crystal-formation reactions and activation energy, and therefore the invention of claim 1 is not suggested by the reference.

In further support of the distinction of claim 1, Applicants submit herewith a Rule 1.132 Declaration showing that GaHx is in fact produced with the method of the claimed invention, and that derivatives such as GaNH are not produced. The Experiments 1 and 2 show that the aeriform substance produced is GaHx, such as in the evaporation rate data illustrated in FIG. 1 of the Declaration, which relates to the evaporation rate of GaH₂. Further, the experimental results show that there are no materials as GaNH species present, and there is no evidence of an evaporation energy that indicates the presence of GaNH. (See FIG. 4. and "Brief discussion that GaNH is not present.") For at least the

foregoing reasons, Applicants respectfully submit the claim 1 and its dependents are distinguishable from JP 2000-233993 and are allowable.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claims 56-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (US 6001748). Applicants respectfully traverse this rejection to the extent it is maintained.

Tanaka is directed to methods for materials that contain Al, and neither discloses nor suggests materials that contain Ga as required by claim 56. Thus, Applicants respectfully submit that claims 56-58 are allowable over the references cited.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claims 7-10, 12-14, 16, 19-21, 23-25, and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-233993 in view of Hunter (US 6296956). Applicants respectfully traverse this rejection to the extent it is maintained.

Hunter does not suggest a method using GaHx, and therefore does not remedy the deficiencies of JP '993 noted above. Moreover, Hunter is not even directed to Ga-containing materials, but like Tanaka is directed to Al-containing materials. Therefore there is no basis in the present record supporting the combination of the references. Applicants respectfully submit that the claims are allowable for at least these reasons, and the foregoing reasons discussed with respect to claim 1.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

With regard to added claims 61 and 62, Applicants respectfully submit that the prior art of record does not teach or suggest claims 61 and 62, namely for at least similar reasons as discussed with respect to claim 1 in that the prior art of record does not teach or suggest using GaHx as the aeriform substance. For at least the foregoing, Applicants respectfully submit that these claims are allowable.

In view of the above remarks, favorable reconsideration is respectfully requested and a Notice of Allowance is respectfully solicited. If any further questions arise regarding this communication, the Examiner is invited to contact the undersigned attorney.



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Respectfully submitted,

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